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## MEDICAL NEWS LETTER

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Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

Change of Address

Please forward changes of address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland 20014, giving full name, rank, corps, and old and new addresses.

The issuance of this publication approved by the Secretary of the Navy on 4 May 1964.



Combat Psychiatry in the Field

CAPT C. S. Mullin MC USN, Chief of Neuropsychiatry Service, U. S. Naval Hospital, NNMC, Bethesda, Md.

Future combat operations involving marine and naval units will undoubtedly differ radically from traditional methods and conditions of warfare of the past. The great sea and air battles of World War II and the mass infantry engagements of the Marines in the Pacific conflict and in Korea represent a kind of combat operation that is now of historical interest. But there is a continuing possibility that our forces will from time to time become involved in small "guerilla" actions, "brush-fire wars," "police action," and even operations involving the tactical use of atomic weaponry. However, regardless of the "style" of combat the response of a soldier or sailor to the dangers and devastations of war remains unchanging. Fear, guilt, and grief will continue to assault the sensibilities of the participants and give rise to the combat ineffective known as the psychiatric casualty. There is little reason to believe that the loss of effective fighting manpower from psychiatric causes will not continue to be of formidable concern.

Frequency. During Army land operations in World War II the ratio of wounded in action to psychiatric casualties was frequently of the order of 4 to 1. During the Korean conflict the ratio of Marines wounded in action to psychiatric casualties identified and recorded as such was of the order of 8 to 1 although some engaged elements of the First Marine Division were far less affected by this source of manpower loss than others. Much depended upon the esprit of the unit and a number of other variables including the duration and intensity of the combat experience.

The "Symptomatic" Picture. What does the combat induced psychiatric casualty look like after the first few days or weeks that he bears the label of combat fatigue? Several fairly distinct categories can be delineated.

1. The Anxiety Reaction. This term characterizes a response manifested by extreme apprehensiveness, tremulousness, marked autonomic overactivity, "startability," hyperalertness, preoccupation with harrowing memories of battle experience, and catastrophic dreams.
2. The Depressed Reaction. Here the depressive affect is associated with morbid preoccupation with combat experiences, and/or feelings of bereavement. Here grief and guilt are more obtrusive factors than the anxiety element which however is usually also present.
3. The Apathetic Reaction. Here the casualty is withdrawn, more or less unresponsive, shows varying degrees of psychomotor retardation and is more or less unaware of surroundings. This may represent a defensive process of psychological retreat. When extreme this response may at times suggest catatonia.
4. The Pseudo-psychotic Reaction. This may be manifested by states of wild excitement, agitation, and disorganization; more or less obliviousness to

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the immediate environment, and a "running amok" picture. If the casualty is armed he can be dangerous because of the usually violent content of the dissociative condition in which the man behaves as if he were still in the combat situation and "trigger ready" to defend or attack without discrimination as to friend or foe.

5. "Hysterical" Reactions. Here the anxiety is "bound" by such gross symptoms as blindness, deafness, dumbness, monoplegias, paraplegia, astasia-abasias, episodes of apparent unconsciousness, amnesia, etc.
6. "Psychosomatic" Reactions. These may include headaches, vertigo, syncope, manifestations, vomiting, diarrhea, frequency of micturition, "effort syndrome" or other cardiovascular and respiratory manifestations. Where these psychosomatic manifestations are the obtrusive aspect of the picture, there is a real possibility of erroneous diagnosis and premature evacuation. If or when tactical atomic weapons are in use perhaps one can expect to see symptoms which reflect the man's own ideas of the manifestations of radiation sickness.

The Term "Combat Fatigue". As a practical matter the term "combat fatigue" should be the initial diagnostic designation of all acute psychiatric conditions related to the stress of combat irrespective of the presenting symptomatic and behavior picture. In the combat situation there is good reason for avoiding diagnostic terms such as anxiety state, neurosis, psychosis, catatonia, blast concussion, hysteria, exhaustion, and the various designations commonly applied to psychosomatic disorders. The majority of these acute conditions will be fluid, often changing rapidly in character and severity and to a more or less degree transient, even though the disturbance of behavior initially may be extreme. The use of these specialized terms is likely to lead to an assumption on the part of the patient that a greater degree of disability exists than is actually the case, as well as an assumption on the part of those handling the casualty that the very specialized forms of treatment or distant evacuation are required when in fact such indications may be absent.

Etiological Factors. What are the major affective factors relevant to the development of combat fatigue? Fear is of course paramount; fear of death, of mutilation or of fear itself. In addition the man may have to deal with more or less rational responses of hate, resentment, guilt and grief; hate stimulated by the combat situation, grief for slain buddies and guilt that he has not performed manfully or that he has survived when others have not. Whether or not and how well a man stands up under these pressures of fear, hate, guilt, and grief depend upon a wide variety of interacting factors that might best be discussed under the headings of (1) personal factors and (2) external circumstances. Personal factors include the following:

- a. The quantum of anxiety ordinarily aroused in the individual by exposure to danger. The intensity of response to danger is of course the product of a man's inheritance, (i. e., "constitution"), his experiences of, and responses



- to, danger situations in the past, especially in childhood, i. e., what the threat of combat danger means in his personal psychological economy.
- b. His capacity for coping with the emotions of fear, by such defenses as pride and detachment, feelings of invulnerability, "self discipline," confidence in his technical competence in his combat job, religious attitudes.
  - c. His capacity for identification with the group. This is all important and will be mentioned more fully later, but the fact remains that there are individuals who are deficient in the ability to feel a part of any group. This represents a handicap with respect to the ability to resist the effects of fear.
  - d. Extra-military preoccupation; for example, concern about home, wife, children, parents, financial problems which may distract from and attenuate the strengthening bond he feels with the group.
  - e. The presence or absence of such factors as physical fatigue, illness, and loss of sleep. All these conditions render the individual more vulnerable to impact of combat aroused emotions.

External circumstances bearing on susceptibility to combat fatigue will include the following:

- a. Whether or not the man has a strong and worthy group with which to identify, whether it be a squadron, platoon, company, battalion, or ship. This identification is of enormous importance in protecting against undue anxiety and in assuring combat effectiveness. Feeling an integral and accepted part of the group is of importance because: The man believes this good and powerful group will protect him; because he loves the group he will therefore be willing to endure more; because if he dies a part of him lives on with the group.
- b. Identification with a worthy cause. The Russians at Stalingrad were fighting for their homeland, their cities and their families in a very immediate sense. The Americans in Korea, for example, did not often fully understand what they were fighting for.
- c. The military situation. This is of importance in determining the amount of stress the individual or group must bear. There is obviously less stress when the military operation is progressing well than when it is faring poorly.
- d. Duration of stress. It is by no means necessarily true that the longer a man remains in combat the less anxiety he experiences and the more adjusted and effective he becomes. At least so far as land warfare is concerned, after an initial acclimatization a point of diminishing return sets in.
- e. Other external factors affecting the man's ability to withstand combat stress will include climate, terrain, loss of buddies because of casualties, disappointment in rotational expectancies, poor communications, permitting the development of anxiety-fraught rumors and psychological techniques of the enemy including leaflet dropping, seductive loud speaker messages, the bagpipes of El Alamein, the banzai screams of the Japs and the night attacks (with bugles blowing) of the Chinese in Korea.



Treatment and Disposition. The following are time tested basic principles of handling acute combat psychiatric cases:

1. Treat the casualty as near the central area of operations as feasible. The farther removed the man is from the area of danger, other things being equal, the more likely his symptoms are to solidify.
2. Endeavor to convey the idea that he is accepted as an honorable casualty of battle.
3. Say or do nothing to arouse the hope that he might be evacuated unless you are certain that the cause is lost.
4. Encourage, but do not press the man to talk about his experiences, to ventilate his feelings of fear, guilt, grief, and hostility.
5. Sedate sufficiently to assure several hours of sound sleep.
6. Return to duty as expeditiously as possible.

Who to Evacuate for Specialist Attention. The following are guidelines:

1. The obviously psychotic. (This does not necessarily include the "beserk" or the pseudo-psychotic as described above but those who are clearly schizophrenic, manic or profoundly depressed and retarded. Typical psychoses are extraordinarily rare in combat).
2. The hysteric. The patient with gross hysterical symptoms as blindness, deafness, paralysis, etc., which is not the result of exposure to a nearby explosion and are obviously associated with a fragile immature personality.
3. The severely apathetic and retarded type of casualty who appears totally depleted emotionally (but care should be taken to assess the importance of sheer physical fatigue and sleep loss).
4. The man who has repeatedly panicked.
5. Gross chronic tremulousness associated with gross chronic startability.
6. The NCO (or officer) whose symptoms, while not in themselves striking or severe, imply significantly impaired judgment or unacceptable example. However in determining who should be retained for speedy return to duty and whom to refer for specialized attention, considerations other than the presenting symptomatology must be reviewed.

These include the following:

1. Previous combat performance. If this has been good the prognosis is likely to be more favorable.
2. Maturity and emotional stability of a man's "previous" personality as far as this can be ascertained.
3. The degree of improvement shown after the first day or two of medical attention. If properly treated, improvement in most cases should be quite rapid.
4. The elusive quality known as personal motivation. Men with relative obtrusive symptoms and high grade motivation can be returned. Men with lesser symptoms and markedly deficient motivation must frequently be evacuated.

Clinical Example. The principles of treatment and disposition of combat fatigue cases might best be illustrated by describing how a number of severely disturbed patients were handled by the author one night in Korea in May of 1951.



Nineteen casualties were admitted during the course of the night. These 19 were members of two companies of the attacking forces that were pinned down for two hours by devastating mortar fire with severe casualties. They were admitted to the care of the forward combat fatigue unit within an hour of their relief. Almost to a man they were severely "shook." Some were in a dissociated state, reliving their experience noisily and with hallucinatory vividness. Some were weeping without restraint. Others sat stricken and immobile staring into space.

The first thing was to isolate those patients whose behavior was quite disturbing to the rest of the group. We (my corpsmen and myself) moved about among the rest of the group taking a two or three line history, offering as much solace and comfort as we could. For those who wanted it and could take it, hot soup was made available. All were sedated quickly according to their apparent needs (with combinations of nembutal and sodium amytal). We were not sparing with our sedation. Our feeling was this first night was of vital importance and we should aim at the elimination of anxiety-producing stimuli either from without, i. e., the sound of battle in the distance or the noise of the camp, or from within, i. e., the man's own memories of his harrowing experiences. My corpsmen assistants and myself spelled one another, staying with the group throughout the night giving additional sedation or word of comfort and reassurance when indicated. We permitted the men to sleep as late as desired the following day.

In the afternoon we went about talking with the men, sometimes in a group, sometimes individually, endeavoring to create the impression they were considered honorable casualties of battle, that there was nothing unusual about their condition and that their symptoms were not evidence of weakness of character. In one or two instances where we felt that an emotional explosion was imminent we removed the man to our interview tent and encouraged him to talk out his experience. The aim was twofold; first to permit the man to ventilate his feelings, and secondly to avert the possibility of a disturbing display in the presence of the group. We arranged to quarter two or three ambulatory wound cases who seemed suitable personalities in our NP tent explaining to them beforehand the reason. We felt that the presence of these relatively normal, relatively cheerful personalities would be helpful in dispelling the atmosphere of anxiety, gloom and failure that, to a more or less degree, pervaded the group. One of the casualties was an officer. His recovery was the most rapid. He was apparently a highly respected leader. We took advantage of his influence and encouraged him to go among the men talking with them individually and collectively. For those who felt up to it we provided shaving equipment, some card games and writing materials. We again sedated most of them the second night but considerably less heavily than the night of admission. Again either myself or my corpsmen stayed with the group.

The following morning we required all of these men to be up at reveille, police their area and obtain their food from the chow line. Following chow we persuaded all of them out of their tent and tried to interest them in volleyball

and horse-shoes. They were for the most part still somewhat shaken and still obviously somewhat preoccupied by their experiences but still there had been remarkable improvement. At this juncture of the treatment we deliberately turned from the initial attitude of unqualified support for their regressed needs to the encouragement of self-determination and initiative. Nothing was said either about evacuation or about return to duty. We interviewed a few men individually who seemed to have particular problems with respect to guilt in hopes of alleviating this but in the main, as always, our principal effort was directed to the group.

On the third night most of them slept pretty well with minimum sedation. On the fourth day we conducted a formal sick call and announced to all but 2 or 3 men (of whom we felt quite unsure) that a duty party was forming and how about going along. We spoke to each man in such a way that his reply could be heard by the others. It may seem rather calculated to take advantage of a man's pride and concern about the opinion of his fellow Marines in this fashion but this approach spared the many fruitless arguments and psychologically subversive resentments that so often ensued when the casualty was informed privately that he was to be returned to duty. Three of the original 19 were evacuated; 2 were retained for a little longer and assigned to non-combat duties from the division; the remaining 14 were returned to full combat duty. None were readmitted as psychiatric casualties, at least, during the next 4 months that I remained with the division.

Prevention. The recognition and prevention of psychiatric casualties in battle is, in a broad sense, the responsibility of all officers, NCOs and corpsmen who have anything to do with the combat unit. The leadership qualities of the command are of crucial importance. It has been clearly demonstrated many times that there is a striking relationship between the incidence of combat fatigue and the esprit of the combat unit. While the quality of the line officer's leadership is of more central significance, the medical officer's contribution can be considerable. The battalion medical officer, for example, or the medical officer whose assignment places him in the position of the closest contact and intimacy with the combat group has a particular opportunity and responsibility. He and the corpsmen he has trained are generally the first to receive and evaluate the emotionally disturbed man. How he evaluates, treats, disposes of the shaken marine or sailor is of the utmost importance in terms of the vital necessity of treating the man as soon as his symptoms become overt and returning him to duty as expeditiously as possible in all those cases where the man's condition or the facts of the military situation do not require some form of evacuation. This (generally junior) medical officer who is most proximate to the combat involved element is in a more favorable and influential position with respect to effective handling of the combat fatigue case than any other medical officer within the combat organization structure. He lives more or less the same life and knows the stresses; he is generally an accepted member of the outfit; he is close to the sources of information about the men.



Points of Emphasis for the Combat Medical Officer

1. Handle and treat as many combat cases as you can yourself. Send to the psychiatrist only the doubtful cases or those who have unequivocally lost their effectiveness in the foreseeable future; or those who cannot be held because of the tactical or logistical situation.
2. Realize that sooner or later in a combat situation most men develop symptoms of anxiety which will be present even when danger is absent. These would be palpitations, anorexia, gastric distress, frequency of micturition, diarrhea, ready startability, tremors, insomnia, headaches, irritability, mild depression or whatnot. These symptoms are not in themselves sufficient indications for relief from duty or for evacuation.
3. And (as a correlary to the above) learn to recognize the various psychosomatic aliases that may conceal the true genesis of the condition.
4. Know the difference between true blast concussion and anxiety state. (The great majority of men initially diagnosed as suffering from blast concussion in the First Marine Division in Korea in 1951 were actually suffering primarily from an anxiety state re: a form of "combat fatigue").
5. Indoctrinate your corpsmen regarding the facts of life of combat fatigue so they can provide you with useful information and avoid sabotaging your efforts to get your casualties back to duty.
6. Establish good working and social relationships with the "line" so that there may be an understanding of what you are trying to do; so that they may provide you with the kind of information that is useful in understanding your man; so that they do not "use" you to dispose of disciplinary cases; so that they understand why you are holding combat fatigue cases instead of evacuating them; so that they understand the importance of the behavior and attitude of the NCOs and officers in relation to the whole problem of combat fatigue.
7. Keep informed about the tactical situation for the following reasons:
  - a. In order to evaluate the degree of stress to which your man has been exposed.
  - b. In order to understand conditions to which he may be returning.
  - c. So that you will know how much time you have to hold and treat.
8. Recognize the somewhat difficult truth that most of the shaken men sent to you off the line can return to duty and can function effectively and persevere better than you imagined when you first observed their distraught and often pleading condition.
9. Finally, watch your own emotional state which may indeed prejudice your judgment, either because you are overidentifying with the combat fatigue case and unwisely recommending evacuation (by far the commonest error) or because you have developed a tired, irritable and resentful attitude that sends the wrong man back to danger or sends him back with the added burden of angry feelings because of your callousness and inhumanity.

NOTE: It is strongly recommended that this excellent and highly practical paper of Doctor Mullin be reproduced at local levels and used as hand-out material to all personnel assigned to Surgical Teams, Casualty

Evacuation Teams, and all Medical Department members serving (in any capacity) for augmentation of Fleet Marine and Amphibious Forces. It would also be well to consider a copy for each MC, MSC, DC, and NC officer reporting for first ACUD. —Editor

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### Injuries of the Central Nervous System

LCDR M. G. Andersen MC USN\*. From the Proceedings of the Monthly Staff Conferences of the U. S. Naval Hospital, NNMC, Bethesda, Md., 1963-1964.

In reviewing the topic of central nervous system trauma, we do not bring in statistical surveys or profound new discoveries, but rather discuss some of the more common conditions we may well see in the Emergency Room or where traumatic cases may be handled. Since our group is composed of military physicians, our aims should be the improvement of our ability to diagnose and treat all forms of trauma.

In line with this discussion, two incidents which occurred some years ago show opposite actions by Emergency Room medical doctors. The first occurred in an Emergency Room just as a patient was wheeled in. The doctor on duty, learning that it was an automobile accident case, called to the nurse, requesting that a neurosurgical resident be called. The problem was a broken leg. The second case occurring in an Emergency Room did not have so good an outcome. In passing through the Emergency Room, the neurosurgical physician saw a patient on a stretcher who needed neurological care. He was hemiparetic and semi-comatose. The patient had been lying there for some time waiting for the Emergency Room doctor to arrange for x-rays to be taken of his skull. However, because of his condition, the patient was immediately routed by the neurosurgeon to the Operating Room for evacuation of an epidural hematoma, and, although he lived, the follow-up on the patient revealed that he was mentally retarded.

In order to avoid these two extremes, the following guide lines are suggested: Instead of dividing injuries into concussion, contusion, laceration of brain, and so on, we should consider the problem under three different categories—(1) Cases needing immediate operative intervention; (2) cases needing surgery which can be delayed; and (3) cases which are treated with supportive care only. It goes without saying in discussing surgical cases, that we must have available to the surgeon: cautery, suction, and special lights (if needed) so that surgery cannot be done in the Emergency Room or some place not having these facilities.

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\* Staff physician of the Neurosurgery Service, USNH, Bethesda, Md.



The first group of patients are those needing immediate care. What types of clinical conditions present as surgical emergencies? They are epidural hematoma, depressed compounded skull and spinal fractures, and some subdural hematomas. The need for surgery in the compounded fractures is as you would expect in wounds of other parts of the body. That is the prompt removal of foreign materials, debridement, and closure of wound in an effort to prevent infection.

The cases that cause the greatest concern are the closed head injuries. The most important single clinical sign the neurosurgeon must consider is the level of consciousness. It should be emphasized that the level of consciousness is the most important sign to watch. The history of having been awake and lucid after the injury, followed by increasing drowsiness, should spur the physician to very rapid action. This history is classic although it is not always obtained. Emergency action in this type of patient is required immediately because there is the possibility he can die within a few minutes. Often you read that the patient was awake, became increasingly drowsy, and died within fifteen or twenty minutes. When one considers that it takes time to locate the surgeon and to set up the Operating Room, the necessity for immediate emergency action is apparent, and it is always important to keep suspected epidural hematoma high on the list of diagnostic possibilities. In these cases, saving the patient's life is not the only prime objective, but also preserving his thinking ability and personality. It is really no triumph if the physician releases the pressure on the brain in order that the patient will live, leaving only the body with heart and lungs functioning, and with no soul or spirit. In one Veterans Administration Hospital, there were six men in a room, living in coma vigilans two to four years after their accidents. Several of them had injuries to the mid-brain which could not have been helped, but two of them had hematomas which were evacuated too late.

As to acute subdural hematomas, their prognosis is usually poor. Seventy to eighty percent of them will die because the injury causing the blood collection also injured the brain. In doubtful cases, however, the physician puts in burr holes. The morbidity and mortality from burr holes is negligible, so the patient should be operated upon when there is only the suspicion of an intracranial blood collection.

The importance of the level of consciousness in the closed head injury is emphasized. Unfortunately, it is possible to be misled as to a patient's level of consciousness if he was intoxicated when he sustained his injury. An excellent differential diagnosis of the intoxicated, head-injured patient is published in the Navy Medical News Letter 41(10): 8<sup>1</sup>. When faced with this problem, one can consider cerebral arteriography if the patient's clinical condition permits.

If the patient has a head injury and also shock, the physician must consider causes for shock other than central nervous system trauma. Although the scalp can bleed profusely, shock is seldom seen in patients with central nervous system injuries. The physician should check for ruptured viscus of the abdomen, fractures of the long bones, etc.



The question of doing spinal punctures on these patients is raised. Nothing can be gained except in cases where there is blood in the cerebral spinal fluid indicating the patients have had cerebral contusions or lacerations. In the case of an epidural hematoma, spinal puncture could be dangerous in that the brain could be herniated at the foramen magnum by releasing spinal fluid below. If the patient has a stiff neck and the form of trauma is not known, it may be necessary to do a spinal tap to rule out aneurysm since the patient could have ruptured a cerebral aneurysm and then fallen and sustained visible head trauma.

Regarding skull-fractured patients: if there are open wounds, they should be debrided in the Operating Room. As is true in other wounds, this should be accomplished immediately. If there is a depressed fracture and the scalp is not opened, the rule-of-thumb for elevation is that when the depression is greater than the thickness of bone, it should be elevated. In spinal fractures, if there is evidence of pressure on the cord or roots, there should be very early surgery.

A patient can have extensive damage to his vertebrae without neurologic involvement. However, when in doubt as to the existence or non-existence of spinal injury, treat the patient as though one existed. This means, keep him lying face up on a firm surface and, if cervical, have the head supported between sand bags.

Another group of injuries are those who have thrombosis of the carotid artery, secondary to trauma. The condition is one that must be kept in mind in the casualty who has sustained trauma and is hemiparetic and sometimes aphasic. The diagnosis here is made with carotid arteriography and treatment consists of opening the carotid artery with evacuation of the clot.

Before leaving this group of patients, two other procedures are mentioned. Do not forget to place an indwelling Foley catheter in the comatose patient and, if necessary, have a tracheostomy performed. The main factors governing the tracheostomy are the depth of the patient's coma and whether he is handling his mucous secretions. A patent airway is a vital, life-saving essential in a goodly number of these victims.

The next large group of patients to consider are the ones who will come to surgery, but the need is not immediately urgent. Here we consider subdural hematoma if the patient's clinical condition is stable. If seen a few days after injury and arteriograms show there is a subdural hematoma, it is well to delay a week or so if possible. The reason for this is that it will allow the blood which is clotted to liquefy and thereby make the operation technically much easier. However, these patients must be followed carefully, checking their level of consciousness, strength, and vital signs frequently.

Among this type of patient will be infants who have been developing poorly, have enlarging heads, or are convulsing. If the cause is a subdural hematoma, this can be treated by repeated tapping at the lateral aspect of the anterior fontanelle until the hematoma cavity closes.

While considering pediatric problems, mention can be made of the depressed skull fractures in infants under two years of age. These should be



elevated regardless of the amount of depression because the brain is growing rapidly at this age and pushing the skull out as it enlarges.

The carotid-cavernous fistula is a complication of head injury which usually is noticed days or weeks after the injury. The patient always complains of a rushing or whistling sound in the head. A bruit can be heard over the eye which is proptosed and has an injected conjunctiva. This condition requires cerebral arteriography to evaluate the fistula and the various vessels involved. The treatment is trapping of the internal carotid artery in the head, ligating the ophthalmic artery, stuffing muscle up the internal carotid artery to the site of the fistula, and finally ligation of the carotid vessels in the neck on the ipsilateral side.

We finally arrive at those patients whose treatment is going to be watchful waiting. These individuals, with closed head injuries are those whose level of consciousness is good enough for them to answer questions correctly. What will treatment be? Vital signs should be taken every one-half hour, pupils checked, strength (hand grip) compared, and proper reply to questions evaluated. A falling pulse, rising systolic blood pressure, weakness developing on one side, a pupil dilating, are all indications of increasing intra-cranial pressure and may indicate the need for quick decompression.

X-Rays of the Skull: If the patient is intoxicated or non-cooperative, defer the skull x-rays until he can be still. It is a waste of film and time to get pictures of a moving head. Of course, if there is an open wound and a compound fracture is suspected, x-rays must be made, at least an AP and a lateral view.

Medications: Patients suspected of having head injuries should not be sedated. If they are having pain, analgesic medications can be given. Do not give morphine as it constricts the pupils and you lose one of your important signs of trouble. Do not use medications to dilate the pupils. If you cannot see the fundi to check for papilledema, forget it. The papilledema usually takes hours to develop and again with pupils medically dilated, we cannot follow their natural course.

If there has been bleeding or fluid from the nose or ear, and basilar skull fracture is suspected, the patient should be started on antibiotics. When in doubt about clear nasal fluid, send the specimen to the laboratory for glucose examination. There is no glucose in mucous secretions, but there is glucose in cerebrospinal fluid. If there is fluid in the ear, the Ear, Nose, and Throat Specialist can help in differentiating an otitis media from a cerebrospinal leak. These patients should be kept in a head-elevated position. Finally, give Tetanus Toxoid and anticonvulsants as indicated.

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1. The Clinical Examination of Head Injuries with Emphasis upon Alcohol as a Complicating Factor—U. S. Navy Medical News Letter 41(10): 8, 17 May 1963. By CAPT Robert W. Mackie MC USN. From the Proceedings of the Monthly Staff Conferences of the U. S. Naval Hospital, NNMC, Bethesda, Md., 1961-1962.

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## MISCELLANY

### URGENT TRAINING NOTICE

#### Applications for Inservice Residency Training 1965-1966

Interested applicants for inservice residency training, should carefully review BUMEDINST 1520.10B for information concerning programs offered and procedure for submitting applications.

Deadline for submission for inservice training programs to begin in the summer of 1965 is 15 November 1964. Candidates will be notified of selection or nonselection by 15 December 1964. Applications, submitted via chain of command, should be for the full training program as outlined in BUMEDINST 1520.10B.

Combined programs such as in Neurosurgery, should be requested for the inservice portion first to begin in the summer of 1965, with the civilian portion to follow in a civilian institution to be determined.

Applicants are encouraged to list at least three choices of naval hospitals for location of training if such choices exist in the chosen specialty, and may feel free to write the chiefs of services for details of the training offered, if desired.

Early submission of applications is recommended to assure processing through chain of command and receipt in BuMed prior to the 15 November 1964 deadline. —Training Branch, Professional Division, BuMed.

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#### On the Importance of Thorough Histories and Physical Examinations During Enlistment Proceedings

Foreword. The following article concerns discharges of recruits because of EPTE physical defects. The report covers 482 cases discharged during a typical six-month period for "common" type physical defects and implies that many or most such defects should have been discovered or more thoroughly explored at the time of the enlistment physical examination. The report should be of particular interest and benefit to those physicians required to conduct physical examinations for entry into naval/military service.

—PQ&MR Div., BuMed.



Physical Defects in Recruits

By LT John R. Judge MC USNR\*

With the increasing awareness of relatively more physical and mental disabilities inherent within our younger population, it particularly behooves examining physicians, military and civilian, to be especially diligent during a physical examination of the younger patient. Too often, the patient's youth with its implied health, is the rationale for the somewhat cursory examinations sometimes given to this particular group, both in private practice and in organized groups such as represented by school athletic physicals or military pre and post induction/enlistment examinations.

The consideration of cost, both monetary and in physical aggravation, as a result of non-detection during a physician's examination is tremendous. The moral responsibility of a physician to render the best physical examination possible, speaks for itself.

The following data represent a typical six month period of the more common type defects which discharged recruits for physical defects from the United States Naval Training Center, San Diego, California, after all had purportedly received thorough enlistment physical examinations which did not indicate any abnormalities. This number, totaling 482, is not indicative of the total number surveyed.

Joint Defects, Traumatic/Congenital. By far the largest single type entity encountered was in the orthopedic realm. This represented 21.9% of all cases seen. Most were post traumatic knee joint derangements suffered in athletic or car accidents, but also seen were cases of tibial torsion and genu valgus; chronic shoulder dislocation cases, some postoperatively and still symptomatic; chronic patellar dislocations; talipes equinovarus; post traumatic arthritis involving hips, elbows, knees and feet; osteochondritis dissecans; and "loose bodies" within joints. The one constant finding in almost every one of these cases was the fact that each had been previously symptomatic, had told the examiner of his defect(s) or in fact had an obvious deformity to even casual observation. On questioning, some related the examiner looked at the member briefly, while others did not acknowledge or indicate further interest.

Dermatitis. The second largest grouping of surveyed patients was represented by various dermatological entities. This group, representing 10.3% of the total, included: Atopic dermatitis; (neurodermatitis); acne conglobata; ichthyosis, severe; chronic eczema; psoriasis; dermatitis venenata; dermatographism; hidradenitis and epidermolysis bullosa. While some of these cases claimed no previous knowledge (mostly the atopic dermatitis cases) the remainder showed dermatological sequelae when examined and all had indicated both on enlistment forms and to the examiner, a past history of dermatological difficulties. In no case was further examination performed or consultation obtained, and each man was then considered as a fully healthy individual (by

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\* Dr. Judge was in charge of the Medical Survey Branch, Naval Training Center, San Diego, Calif., from 11 September 1963 to 8 July 1964.

standards). While some dermatological lesions can be a puzzle to the average physician, their existence or potential should not be ignored.

Chronic Otitis Media/Tympanic Perforations. The group representing chronic previous ear infections and/or sequelae is almost as large as the skin conditions category. This group comprising 9.4% of all cases, consisted mainly of patients with tympanic membrane perforations secondary to previous recurrent otitis. Also seen were badly thickened and scarred membranes secondary to infection; cholesteatoma conditions; and traumatically injured membranes. Of interest is the fact that in every single case each man stated a physician had performed an otological examination with an otoscope. Almost as amazing is the fact that all but four patients stated they told the various examiners of the previous ear infections or difficulty, yet, not one patient of the group had been told of any ear abnormality while being examined for the service. The conclusions to be drawn from this situation indicate ineptitude or indifference on the part of the examiners.

Hernias/G. U. Defects. Next in prominence was the group representing hernias or genito-urinary defects. This group, which made up 10.3% of the total, mainly had simple unilateral inguinal hernias. Also seen, however, were cases of cryptorchism; varicocele; spermatocele; and both epispadias and hypospadias, not to mention several cases of testicular agenesis. Upon questioning each man, it was revealed that only approximately one-third had been examined for hernia, although each had stood naked during the entire course of the physical examination.

Congenital/Traumatic Limb Atrophy. In much the same vein, 4.1% of cases were seen with obvious physical deformity of a limb. Although most were of traumatic origin, there was even a case of spasticity secondary to documented birth trauma. Every patient in this group readily related the details and incapacities of his arm, hand, leg, or other part. Yet, in every case, each related he had been "looked at" by a physician. It is, of course, most difficult to surmise the rationale behind the acceptance for military service of each of this type patient. Medical skill certainly does not play a part, as even a lay person might well discern that something was amiss in merely looking at these individuals. In fairness, it might be assumed that a humanitarian motive, albeit misguided, prompted the acceptance of these patients in the hope of "giving them a break," although it is hard to reconcile the complete ignoring of medical facts of this nature or probability of eventual discovery, with this motive.

Asthma. In this group which represented 3.5% of cases, were seen mainly patients with long-standing asthmatic-type respiratory difficulty. Most were medical problems from the onset of military training and, as such, were seen for acute episodes of difficulty which required systemic therapy. In all but two cases, each man stated that he had indicated a previous history and/or current therapy at the time of his original examination, yet not one was detained for corroboration nor was any further interest or action taken other than the auscultation performed on the chest. One patient with an established diagnosis of mucoviscidosis and recurrent pneumonia problems brought his



own physician's statement to the examiners but after auscultation was also passed. The waste in effort and money expended in processing these people could well have been averted if the old physical diagnosis adage "listen to the patient, he will tell you what is wrong," had been heeded, and corroborative investigation had been pursued.

Deafness. In this group, which was considered exclusive from post infectious sequelae deafness, there was 4.5% of total cases. Some were unilateral and some represented bilateral deafness of 70 decibel average loss. In review of statements made at the time of initial examination in each case, every man stated he admitted difficulty previously with auditory acuity. Most did not show evidence of anatomic derangement on otoscopic examination, yet to simple clinical testing with tuning fork and whispered voice all showed diminution of hearing acuity. Even without more specific testing to determine the type of deafness inherent within each man, all should have been initially selected for more precise audiogram examination with these findings to determine the degree of deafness. Yet, not one was even questioned at length regarding his admitted hearing deficit, nor was any notation made of auditory deficit. The motivation to ignore findings of this nature may well be that the examiner felt in each case, that the defect was not "too bad" and that the patient could "get along" even with it.

Heart Defects/Congenital/Acquired. Of particular medical interest is that represented by the group of cardiac problems. This group, comprising 4.3% of cases surveyed was remarkable in that a very notable murmur or adventitial heart sound was evident in every case. While the majority of cases represented post rheumatic fever valvular sequelae there were also several congenital/acquired type lesions, including incomplete septal closures; paroxysmal atrial tachycardia and previous pericarditis. While it is obvious that only a highly trained cardiologist can interpret the more subtle differences in murmurs sufficiently well to establish esoteric diagnoses, it is well within the province, or at least should be, of the average practitioner to distinguish definite indications of current or remote cardiac pathology and to follow up these indications with more definitive procedures within his competence or to seek advice on matters beyond his training. In every single case represented here, the patient had a preinduction physical including auscultation of the heart, yet not one of these stated he was questioned about having a murmur, although each had a very significant, quite audible murmur or adventitial sound on arrival at this base.

While undoubtedly the requisite further examination of any patient creates a problem of inconvenience for both the patient and examiner, as well as adequate number of examiners, it is unquestionably more economical in terms of later health, monetary and even legal considerations.

There is no accurate gauging of the effort and money wasted which could have been avoided very simply if the individual examiners in each of the said cases had not glibly passed the "aberrant cardiac sound," and had sought either specialist advice or had frankly found the man disqualified with findings which obviously preclude military duty according to accepted standards.



In a similar situation, but in smaller numbers (1.6%), were seen visual acuity defect cases including surgically aphakic eyes; complete suppression amblyopia unilaterally and mature cataracts—all of whom had purportedly been given a thorough physical examination previously. In these small groups totaling 9% were also seen several cases of chronic osteomyelitis; some still manifesting purulent drainage from various sites; bone tumors; hypertensives; pilonidal cysts; congenital spinal deformities and active pulmonary tuberculosis cases (all of whom had had chest x-rays performed and read prior to reporting for active duty).

The remainder of cases were of such a nature that a complete physical examination would not necessarily have revealed the difficulty. All told this group was much smaller than the total of the aforementioned conditions. There were included convulsive disorders; cerebral aneurysm; hemophilia; various renal defects both congenital and acquired; peptic ulcer and migraine headaches. Except for deliberate concealment of symptomatology, as was seen in most of the convulsive patients, there was ample evidence that most of the other cases had attempted to convey to the examiners existence of previous difficulty both verbally or on application forms. Unfortunately, in these cases, no further action was taken until after these men had formally been enlisted in the naval service.

While there are undoubtedly a variety of reasons why these men were not found to have disqualifying defects, initially, the one main reason seems to be that each did not receive as careful an examination as he deserved. There can be no doubt that large numbers to be examined and limited time do contribute to a somewhat hastened and cursory examination. Here, however, is just where extra effort must be expected and demanded. The slight additional time required to more adequately assess each patient can prevent the wasted efforts of literally dozens of individuals who must do the further reexaminations, clerical and administrative work in order to correctly determine a man's status. A plea is made on this basis, as well, for a tempering of what may be genuine humanitarian motives in passing a boy who is known to the physician as being physically disqualified. While a "large heart" is a definite requisite in the art of medicine, it should not cloud the scientific aspect of potential harm which can accrue when a known defect is deliberately ignored. Even the psychological effects are worse on the patient when he eventually is discovered to have a disqualifying defect.

This extra effort can only come about through individual motivation of every physician who examines this type patient and it is to be fervently hoped that this trait is still inherent within most of our physicians.

Mortality from bronchitis varies widely from country to country in Europe, being particularly high in those whose industrialization is based on coal. Thus in 1959 the rate was no more than 5-10 per 100,000 population in the Scandinavian countries, as compared with 64 per 100,000 in England and Wales. —WHO Chronicle 18(3): 89, March 1964.



Honor Awards Offered By Freedoms Foundation, Valley Forge. Cash and honor awards are still available for your thoughts on your right to vote. All Armed Forces personnel are reminded of the awards offered annually by Freedoms Foundation at Valley Forge for outstanding statements written by military personnel. The awards include cash awards of up to \$1,000, George Washington Honor Medals, and participation in the awards presentation ceremonies in Washington, D. C., and Valley Forge this winter. The Principal Award recipients will ride in the parade in the Presidential Inauguration.

To compete, a "letter" of 100-500 words on the subject "My Vote: Freedom's Privilege" should be written and submitted to Freedoms Foundation, Valley Forge, Pa., before November 1st. No entry fees or official nomination forms are required. Full military identification and address should be shown.

The awards are selected by a distinguished independent jury composed of justices from the state supreme courts and the heads of the nation's leading patriotic, veterans and service club organizations. The awards offered to Armed Forces personnel are a part of the Freedoms Foundation annual Awards Program designed to recognize individuals, organizations, governmental units, and schools for the things which they have written, said or done which bring about a better understanding of the ideas and ideals set forth in our Constitution, our Bill of Rights, and the Declaration of Independence.

Freedoms Foundation is a nonprofit, nonpolitical, nonsectarian organization founded in 1949. General Dwight D. Eisenhower heads the Foundation's Board of Trustees representing Americans from the fields of education, the arts, science, business and the military.

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Annual Physical Examination of Inactive Flag and General Officers of the Naval and Marine Corps Reserve. In June 1964 BUMED advised cognizant district commandants that all flag and general officers of the inactive Naval and Marine Corps Reserve should undergo an annual physical examination similar to that currently required for flag and general officers on active duty (MANMED art. 15-45(4)).

Correspondence has been received in BUMED to the effect that certain senior officers have been referred to various Army and/or Air Force hospitals for their annual physical examination without adequate instructions. That is, neither the officer concerned nor the examining facility were aware of the exact type or scope of physical examination required. It is suggested that in those cases where referral to an examining facility of one of our sister services is necessary to accomplish the annual physical examination, that both the officer and examining facility be advised of the exact type and scope of the physical examination that is required, i. e., "Annual Executive Type."

—Physical Qualifications and Medical Records Division, BuMed.

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## FROM THE NOTE BOOK

Doctor Benoit Sets Good Example of Authorship

When LCDR Fred L. Benoit III MC USN, departed from Oakland Naval Hospital on July 17 for a new assignment at the Naval Medical Research Institute, NNMC, Bethesda, Md., Oak Knoll lost her most prolific contributor to scientific literature.

Dr. Benoit has been assigned to the Medical Service and Clinical Investigation Center in Oakland for the past four years. He submitted his first paper 26 months ago and since then has had five papers published and two accepted for publication. His contributions have been in fields of metabolism, endocrinology, renal disease, and infectious diseases. He has collaborated with members of the Clinical Investigation Center, Pathology and Medical Service Staffs.

To date, more than a thousand requests for reprints of his articles have been received from various parts of the United States and 34 foreign countries. Three more papers have been submitted, and six are in various stages of preparation for publication—all to be submitted from Oakland.

In addition to writing for publication, Dr. Benoit has been senior author or co-author of a number of papers accepted for presentation at local, regional, national, and international scientific meetings. All manuscripts have been edited and prepared for publication by Mrs. Mullie Jack, CIC publications editor.

Dr. Benoit earned his MD at the University of Washington School of Medicine, interned at Oakland, and served at Naval Air Station, Pearl Harbor, Hawaii, before returning to Oakland in 1960.

—From PIO, Oak Knoll. Submitted by RADM C. L. Andrews MC USN, CO, USNH, Oakland, Calif.

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American Board CertificationsAmerican Board of Anesthesiology

LCDR Charles P. Larson, Jr. MC USNR

American Board of Internal Medicine

LCDR Paul Ivan Jagger MC USNR

American Board of Obstetrics and Gynecology

LCDR Paul D. Mozley MC USN

LCDR John C. Robins MC USN

American Board of Ophthalmology

LCDR Wayne R. Wilson, Jr. MC USN



American Board of Orthopaedic Surgery

CAPT Newman A. Hoopingarner MC USN  
 CDR Howard S. Browne, Jr. MC USN  
 LCDR Hugo S. Deluca MC USN  
 LCDR Abel R. Ellingson MC USN  
 LCDR Glendall L. King MC USN

American Board of Pathology

CDR Frank G. Steen MC USN  
 LCDR Norman M. Horns MC USNR

American Board of Pediatrics

LCDR Dennis F. Hoeffler MC USN

American Board of Preventive Medicine (Aviation Medicine)

CDR Frederick D. Beckwith MC USN  
 CDR Robert C. McDonough MC USN

American Board of Radiology

CAPT Ernest A. Zinke MC USN  
 LT Ronald A. Swanson MC USNR

American Board of Surgery

LCDR Robert D. Belser MC USN  
 LCDR Richard G. Fosburg MC USN  
 LCDR Harvey P. Rubin MC USNR

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CNO's Message on the President's Economy Program. The following message has been received from the Chief of Naval Operations:

"In a one hour meeting with President Johnson, he repeatedly emphasized his appreciation of the steps which the Armed Services had taken in the implementation of his program to insure that we get the most for each Defense dollar spent. It is his desire that each individual and each unit know that he is pleased by these results which indicate to him that we have full appreciation of the need for frugality and prudence in carrying out our responsibilities. Keep up the good work." —T. I. O., BuMed, 5 August 1964.

Smallpox Drug. A new drug to control smallpox has been successfully tested in Madras, India. Between February and July 1, 1963, 1,100 persons who had been in close contact with the infection were given n-methylisatin betathiosemicarbazone (B. W. 33-T-57). Only three mild cases of smallpox occurred among them, and in two of these the full dosage had not been taken. In a similar number of exposed persons who did not receive the drug, although most had been vaccinated, there were 76 cases of smallpox, 12 fatal. (Lancet, September 1963). —Public Health Reports 79(2): 136, February 1964.



**DENTAL****SECTION**

Dental Abnormalities in Rats Attributable to Protein  
Deficiency During Reproduction

James H. Shaw and Derrick Griffiths. Jour of Nutrition 80: 123-141,  
June 1963.

This paper is one of the few exciting studies to be reported for those interested in genetics, nutrition and caries susceptibility. This study was directed toward a determination of the effects upon the oral tissues of changes in the carbohydrate—protein ratios imposed during prenatal and early postnatal life. The experiments were conducted with two strains of caries-susceptible rats and a strain of caries-resistant rats. A standard low-protein diet containing 8% casein fed to the females during the reproductive cycle caused in the offspring of all three strains, a high mortality during lactation, very low body weights at weaning, reduction in the size of the molars, delay in third molar eruption, high frequency of missing cusps on third molars and increased caries activity in the occlusal sulci and on the smooth surfaces of the molars. Post-weaning supplementation of the diet to correct the low protein content was too late to correct the abnormalities.

With a great proportion of the world population on suboptimal protein intake, this study increases in importance, as it clearly demonstrates that nutritional abnormalities may cause deviations from the genetically established blueprint for development of the dental structures.

(Submitted by CAPT F. L. Losee DC USN, U. S. Naval Training Center, Great Lakes, Illinois)

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Effect of Sodium Monofluorophosphate Solution on  
Caries Rates in Children

Goaz, McElwaine, Biswell and White, University of Oklahoma School of Medicine, Division of Dentistry, J D Res 42(4): 965-972, July - August 1963.

A solution of 6% Sodium Monofluorophosphate was self applied with a toothbrush by school children ages, 6 - 14 in Tulsa, Oklahoma, where the water supply has been fluoridated for 10 years. This pleasantly flavored pink solution was



applied daily for a 9 month period and then continued on for 5 months or a 14 month total time.

The children did not use a fluoride dentifrice and did not have topical application of fluoride during the study. At the end of 9 months there was a 30.9% reduction in the R. I. D. (Relative Increment of Decay). This is a ratio of the number of surfaces becoming carious or filled during a given period to the total number of surfaces at risk. For comparison, the decay activity also is presented as the difference between the number of noncarious surfaces initially present (plus those surfaces that erupted minus the number of noncarious surfaces lost) and the number subsequently found to have remained noncarious. This difference is the number of new decayed and filled surfaces  $\Delta$ DFS. During the 9 month period there was a reduction of 25% in  $\Delta$ DFS.

There was an even greater reduction over a 14 month period in both RID and  $\Delta$ DFS, it being 34.9% and 42.1% respectively.

Renewal and remineralization (over the control group) was found to be 41% in 9 months and 66% in 14 months.

The results indicate a significant, additive anticariogenic effect of sodium monofluorophosphate to that accruing from water fluoridation.

(Submitted by CDR R. E. Austin DC USN U. S. Naval Training Center, Great Lakes, Illinois.)

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#### Communications and Health Education

A review of material contained in writings by Sanford, F. I., "Interpersonal Communications", Industrial Medicine and Surgery 25: 261, May 1956 and by Kent, R. M., "Health Educators at Work" 1952.

Each morning as the impressive ceremony of "colors" is conducted aboard ships and stations of the United States Navy, a new day begins for the officers and men of the U. S. Navy Dental Corps who have assignments in these facilities. For them it means beginning anew the constant battle against dental disease—a struggle which has long been gallantly waged by the meritorious efforts of clinical dentistry.

This war cannot be won, however, by treatment of the disease alone. Preventive measures must be utilized by the masses if we are to hope for the ultimate control of dental disease.

There are at present many excellent preventive measures which are known and practiced, but unfortunately only a relatively small number of people are receiving the benefits from them.

The major problem existing now is to reach a much larger proportion of our population and, through various dental health education experiences, hopefully effect a change from their present pattern of behavior to embrace better dental health habits which should in time substantially reduce the incidence of new dental disease.



Communication of knowledge to others then becomes a prime essential in any preventive dentistry program. SANFORD states, however, that mere interpersonal noise that often transpires between the disseminator of information and the recipient of that information is no guarantee of the effectiveness of that information. These speakers are somewhat akin to the archer who pays more attention to his bow and arrow than to the target he wishes to hit!

It is by no means sufficient to expose any individual or group to only one type of learning experience. Neither does it suffice to expose them to only one such experience. KENT has stated that not one, or two, but a series of health education experiences will be necessary to carefully stimulate people to the actual point of changing their attitudes and behavior for their own welfare and benefit!

Dental equipment has improved, new drugs are available, and more modern techniques are taught in our dental schools, yet all of these are of little avail if we do not reach the mind and spirit of the individual. Dental research is providing new and valuable information in this fight against dental disease, but it still remains for some to venture forth into the populace and through teaching, communication and demonstration, improve the people's knowledge and appreciation of better dental health.

It is not enough that the profession itself continues to become more edified at a time when misinformation, ignorance, resistance to change, lack of motivation and apathy among the laity still remain as barriers in our quest for the control of dental disease!

(Commentary on the place these important subjects have in Preventive Dentistry submitted by CDR R. E. Austin DC USN, U. S. Naval Training Center, Great Lakes, Illinois.)

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#### Personnel and Professional Notes

New Packaging of Caries Prevention Treatment Agents. Stannous fluoride and the compatible Special Pumice Mixture have been made available in bulk quantities for Navy Dental Corps usage. Open purchase orders may be directed to Mr. A. P. Austin, Procter and Gamble Company, Winton Hill Technical Center, 6000 Center Hill Road, Cincinnati 24, Ohio. The items are: Stannous Fluoride, 300 gm bottle, cost \$5.00 and Special Pumice Mixture for Stannous Fluoride Prophylaxis, 4 lb bottle, cost \$10.00.

Eleven Dentists Complete Casualty Care Course. Eight dental officers of the U. S. Navy, two dental officers of the U. S. Air Force, and one civilian dentist who attended under the auspices of the ADA, have completed the Casualty Treatment Training Course at the U. S. Naval Dental Clinic, Norfolk, Virginia. The course, under the supervision of the Bureau of Medicine and Surgery, is one of several conducted throughout the Navy to develop in dental officers such skills in emergency casualty treatment as to make full use of their professional



knowledge, thus enabling them to amplify the medical effort in time of major emergency. This is the third course to be conducted at Norfolk this year. The Casualty Treatment Training Course is under the direction of CAPT E. W. Small DC USN, Head of Oral Surgery. RADM E. G. F. Pollard DC USN, is Commanding Officer of the U. S. Naval Dental Clinic.

Reporting Defective or Unsatisfactory Material. Joint FMSO-FLDBRBUMED-INST 6700.16A outlines the correct procedure for submission of Defective Medical Material complaints. Review of these complaints held by the Defense Medical Supply Center's files disclosed that activities are not submitting two (2) copies of this report to the Chief, Field Branch, Bureau of Medicine and Surgery, 3rd Avenue & 29th Street, Brooklyn, New York 11232.

Correction to Training Publication. Training Publications for Advancement in Rating, NavPers 10052-L, on page 59, incorrectly identifies Early Medical Management of Mass Casualties in Nuclear Warfare, NavMed P-5046. BuPers is aware of this error and will correct it as soon as possible.

Naval Dental School Requires Prosthetic Journals. The U. S. Naval Dental School requires the following back issues of the Journal of Prosthetic Dentistry to complete a series of reference texts:

- 1951 - Volume 1, No. 1, 2, 3, 4, 5, 6
- 1954 - Volume 4, No. 1, 2, 6
- 1960 - Volume 10, No. 5
- 1961 - Volume 11, No. 2, 3, 4
- 1962 - Volume 12, No. 5, 6

It will be appreciated if any dental activity or individual can provide copies of the missing issues. Please send directly to: Commanding Officer, U. S. Naval Dental School, National Naval Medical Center, Bethesda, Maryland 20014.

Last Epdoconus Plank-Owner Honored Upon Transfer. On 30 June, Master Chief Dental Technician Eugene A. KENNEDY was honored at a ceremony conducted by the Commanding Officer, Enlisted Personnel Distribution Office for Continental United States, Bainbridge, Maryland.

The occasion was Master Chief KENNEDY's impending transfer from EPDOCONUS to sea duty. This event marked the departure of the last original EPDOCONUS crew member. Master Chief KENNEDY reported to EPDOCONUS shortly before the command's commissioning in January of 1960, thereby becoming a qualified "plank-owner".

While attached to EPDOCONUS, Master Chief KENNEDY served as the Dental Technician personnel distributor for Continental United States. His performance of duty in that billet was so exemplary that letters of commendation from RADM F. M. KYES, Chief of the Dental Division of the Bureau of Medicine and Surgery, and from CAPT A. J. LITTLE, Commanding Officer, EPDOCONUS, were presented to him at the ceremony. RADM KYES' letter noted that Master Chief KENNEDY's "personal attributes of loyalty, dignity,



unswerving integrity, and absolute impartiality, combined with a broad knowledge and thorough understanding of personnel distribution procedures, have contributed immeasurably to the accomplishment of the mission of the Dental Division." CAPT LITTLE pointed out in his letter that Master Chief KENNEDY's "interest, enthusiasm, and experience were of great value in construction of a workable and equitable distribution program for Dental Technicians"; and that he had "continued to strive for improvements which were of benefit to the entire Command." Master Chief KENNEDY was presented with these letters and a plaque carrying the mounted EPDOCONUS seal the day before he was transferred to Hawaii.



"Official U. S. Navy Photograph" by Photographers Mate Second Class Harold D. Phillips (PH2) USN. Bainbridge Md. Presentation of commendation letters to Chief KENNEDY of EPDOCONUS by Captain Little, Commanding Officer, EPDOCONUS, on 30 June 1964.

Nine Bay Area Dental Corps Officers Attend Course. CAPT J. J. Dempsey DC USN, dental officer, U. S. Naval Station, Treasure Island, California hosted a short postgraduate course of instruction in Practical Clinical Endodontics 1 - 5 June 1964. Guest instructor was CAPT Charles E. Rudolph Jr. DC USN of the U. S. Naval Training Center, San Diego, California.

Dental Officer Elected to Membership in Dental Society. CAPT Harvey W. Lyon DC USN, Director, Dental Research, Naval Medical Research Institute, National Naval Medical Center, Bethesda, Maryland has been elected to membership in the American Academy of Oral Pathology.





## OCCUPATIONAL MEDICINE

### Houston to Host Occupational Health Congress\*

CHICAGO—The 24th Annual Congress on Occupational Health will be held in Houston, Texas, September 26 - 27, and sponsored by the American Medical Association's Council on Occupational Health. The two-day meeting will be at the Rice Hotel.

Saturday morning's opening session will be devoted to a discussion of "Cardiology in Industry." Physician participants include George Burch, Chairman, Department of Medicine, Tulane University School of Medicine; Frederick Stare, Professor of Nutrition, Harvard University School of Public Health; John Moyer, Professor and Chairman, Department of Medicine, Hahnemann Medical College and Hospital; Raymond Pruitt, Professor and Chairman, Department of Internal Medicine, Baylor University.

Immediately preceding the noon recess, the annual Physician's Award of the President's Committee on Employment of the Handicapped will be presented to John S. Young, M.D., Denver, for his outstanding work in this field.

The conferees will tour the new NASA Manned Spacecraft Center Saturday afternoon and will be briefed on progress in America's Gemini and Apollo space programs. An astronaut will address the gathering.

A symposium on "Treatment of Burns" will open the next day's program. Participants will include members of the Department of Surgery, University of Texas.

The morning session will close with a three-point discussion of "Problems of General Physicians." Topics include "Investigation and Medical Testimony on Death from Doubtful Causes," "The Nurse Who Works Alone," and "A General Practice Plan for Periodic Health Examinations in Very Small Employee Groups."

Pesticide poisoning, toxic exposures and health programs for radiation workers will be the subjects on the agenda for the afternoon symposium entitled "Environmental Health Services."

The concluding assembly will deal with the practical expectations for rehabilitation of the severely impaired person, with case presentations from Baylor University.

For more complete information write to: Council on Occupational Health, American Medical Association, 535 North Dearborn, Chicago, Illinois, 60610.

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\*News Release from the American Medical Association.



### Glue-Sniffing

National Clearinghouse for Poison Control Centers, U. S. Department of Health, Education, and Welfare, Public Health Service, Washington, D. C. 20201, July - August, 1964.

In recent years there has been very little new knowledge on the glue solvents; the same applies to their toxicity. However, there are several aspects of this problem that can be updated.

Legal efforts have been made to discourage and prevent glue-sniffing in our teen and pre-teenagers. A California municipality has made it illegal for a person to: ....inhale, breathe or drink any compound, liquid, chemical, or any substance known as glue, adhesive cement, mucilage, dope, or other material or substance or combination thereof, with the intent of becoming intoxicated, elated, dazed, paralyzed, irrational or any manner changing, distorting or disturbing the eyesight, thinking process, balance, or coordination of such person.

In Maryland a law was enacted making it: ....unlawful for any person under twenty-one years of age to deliberately smell or inhale such excessive quantities of any narcotics, drugs, or any other noxious substances or chemicals containing any ketones, aldehydes, organic acetates, ether, chlorinated hydrocarbons or any other substances containing solvents releasing toxic vapors, as cause conditions of intoxication, inebriation, excitement, stupefaction, or dulling of the brain and nervous system. Any person violating this section will be guilty of a misdemeanor and upon conviction thereof shall be fined.

Several other cities and states have enacted or have proposed legislation on glue-sniffing. This legislation is of two types. As in the examples stated, one form is directed towards the promiscuous users of these solvents. Another is directed at restricting the sale of products containing these solvents, as in the New York City ordinance. Washington, D. C., and other areas have included both approaches.

A method aimed at eliminating the inhalation of toxic vapors and which would eliminate the glue-sniffing practice has been the placement of responsibility on the manufacturers of glues. The Hobby Industry Association in its position statement on glue-sniffing recognized "glue-sniffing as a sociological problem that is a part of a greater and older social evil, namely, intoxication." The association, however, implemented a program that has both technical and educational phases. On the technical side, a leading biochemical laboratory was retained to develop a substance which could be added to model glue to produce sneezing, nausea, or other unpleasant effects if purposely inhaled in excessive concentrations; and/or a substitute solvent to be used in the formulation of model glue. At the same time, a comprehensive public education campaign was initiated. It included a program directed at business outlets to limit the sale of glue to bonafide model builders. The Hobby Industry Association also produced a color motion picture film on the subject to supplement public educational and information programs.

The fourth conference on inhalation of model airplane glue solvents was held in Berkeley, California, on January 17, 1963. It included representatives of industry, law enforcement and health agencies. At this meeting it was reported that of 94 additive compounds which were under investigation in 1962, 48 were selected and 47 were investigated with a final choice narrowing the field to 17. The most promising solvents which are inert physiologically as well as nonflammably are the Freons. The most important factor was that, while toluene produces intoxication, Freons do not. However, this hopeful anticipation of new solvents to replace those that are now in use is not shared universally, even among members of the glue industry itself.

Although a statistical description of a problem is not necessary to appreciate its existence, there are many unanswered problems. None of the studies conducted thus far indicates conclusively that this practice occurs more frequently in the lower socio-economic groups; or if the problem is still increasing, or decreasing. Reports of glue-sniffing cases have come from various sources, ranging from police departments to health departments; the diverse types of reports make statistical analysis difficult.

The toxicity from this practice of glue sniffing is still poorly defined. There have been at least 9 deaths, 6 of which have been associated with a plastic bag over the victims head. Another death is presumed to have been due to a plastic bag. In two other cases, the glue-sniffing death was believed due to inhalation of organic solvents.

In the years 1962 and 1963 the National Clearinghouse has received only 16 reports of glue-sniffing from the poison control centers throughout the country. Undoubtedly this does not reflect the true incidence of this practice. One deduction is that glue-sniffers consider the practice to be non-harmful. The great majority of reports were in the teenage group. In six telephone inquiries there were no symptoms mentioned for teenagers who had been inhaling the fumes of these cements for as much as 3 months. In eight telephone inquiries symptoms ranging from headache, dizziness, breathlessness, intoxication, unconsciousness, hematuria, blurred vision, and paleness were stressed. In the four "treated" cases in this series one had symptoms of depression, stupor, and dyspnea and the other had psychological changes described by the mother as irritability, moodiness and fright. Unfortunately, none of these cases had a known medical follow-up. The finding of hematuria in one case was not substantiated as caused by the glue solvents. In the other two "treated" cases, the symptoms were unknown.

Other case reports of physical injury reviewed by the National Clearinghouse have shown no conclusive pattern. That two young patients who used airplane cement developed hypoplastic bone marrow in one case and aplastic anemia in another, is certainly a matter to be recorded but not a cause and effect association. Dr. Jacob Sokol studied 89 glue sniffers confined to Juvenile Hall in Los Angeles and compared their blood and urine findings with a sample group from the same institution who were known as nonglue-sniffers. His results suggested anemia as a peculiar toxic manifestation, since all members



of the control group showed normal blood counts. Other blood findings were a change in the form, shape, and color of erythrocytes and leukocytosis.

Apart from physical injury produced by inhalation of solvents from glues, incalculable harm can be done while youngsters are under its influence. They have learned to experience an effect outwardly similar to alcoholic intoxication by inhaling the concentrated solvent fumes of plastic cement and airplane glue. At first the reaction is one of mild intoxication, exhilaration, euphoria, and excitement. Then the sniffer begins to act drunk, becomes uncoordinated, and slurs his words. As one youngster described his sensations: "I saw two of everything and everything far away looked real near. I had noise in my ears like a firecracker going off, and then I blacked out."

Euphoria may be accompanied by a feeling of reckless abandon, sometimes with grandiose notions as to physical or mental capabilities. These sensations occasionally lead to impulsive acts which, otherwise, would have been unlikely. One boy in his early teens was so exhilarated by glue sniffing that he assumed a fighting stance before an oncoming freight train, narrowly escaping death.

In San Francisco, a 12 year old youngster who had never been known to steal, robbed a florist shop while under the influence of glue-sniffing. Another youngster jumped off a low building, convinced he could fly.

One rather small 16 year old boy picked a fight with four sizeable marines and could scarcely believe he had been defeated; four teenagers who were arrested by police after a 70-mile an hour automobile chase through Washington, D. C. were intoxicated from glue solvent inhalation.

Many of these young people describe a feeling of complete detachment from their surroundings. There is some evidence that this impulsive or destructive behavior can be more frequent among glue-sniffers than in persons acutely intoxicated by ethyl alcohol. One police official noted: "Imagine the consequences if the subject experiences hallucinations while driving, working with tools, or if he is placed in any situation where he could endanger the lives of others or harm himself."

It seems apparent, from the many articles on the subject, that most authorities will concede that serious damage is possible from the solvents in these glues. Therefore, it is not necessary to have a long list of substantiated reports, attesting to the damage from the inhalation of these solvents, to be convinced that it is possible. Because this possibility exists there is no need to wait until there is a bulk of evidence, like that which has been accumulated on drug addiction and alcoholism, to initiate programs to prevent this practice. However, we should not be satisfied with any one of the currently suggested methods of control. The glue manufacturers may not find an acceptable substitute for the present ingredients. Legislation may fail in curtailing promiscuous consumers (as it has in lowering the crime rate), or fail in stopping the want on sales of dangerous products (as it has in the illegal traffic of drugs). Abolition of this very useful type of product will not help because there are many other products such as gasoline, and cleaning fluids that could soon become a substitute.

Recommendations for control include: "Efforts aimed at correcting the underlying socio-economic and emotional disorder when they exist; a community approach to educate parents and children as to the potential risk of sniffing; making these glues and related substances less available on the open 'serve yourself' shelves of stores; substituting less toxic organic solvents wherever possible; and adding special 'odor retardants' to some of these substances."

The "coordinated citizens' approach" would seem most feasible at the present time.

\* \* \* \* \*

### Intertrigo and Heat Rash

Norman B. Kanof MD, Jour of Occup Med 6(7): 302-303, July 1964.

Intertrigo occurs on skin surfaces so closely apposed that heat and moisture are retained, resulting in irritation and maceration. These conditions are met in the groin, on the inner aspect of full thighs, in the intergluteal cleft, in the axillae, beneath and between the breasts, between the toes, and between the fleshy folds that occur with an obese, pendulous abdomen, or a bulging neck.

The skin becomes warm, red, and moist. Maceration and superficial abrasions may develop into severe denudation. The involved area is tender or even painful. Chemical alterations of the retained sweat and surface constituents produce a disagreeable odor. Bacteria and fungi flourish in this medium. These organisms contribute to the production and persistence of the eruption and sometimes result in frank secondary infection. In the anogenital folds, contamination from feces and urine adds to this process.

The physical and mechanical factors are responsible for most instances of intertrigo, but this eruption may be a manifestation of another dermatosis. Seborrheic dermatitis and psoriasis may produce intertriginous lesions. Contact agents such as cosmetics or clothing, may produce eruptions in intertriginous sites. Antiperspirants and deodorants characteristically involve the skin of the vault of the axilla; clothing is more apt to produce its effect at the periphery. Infection with *Candida albicans* or with various species of *Trichophyton* proves to be the most important factor in some episodes of intertrigo. If these are resistant or recurrent, the possibility of an underlying diabetes should be investigated.

The treatment of intertrigo involves separating the apposed skin surfaces, soothing the irritated tissues, and specifically correcting any supervening process or underlying dermatitis.

Thin cloth bandages, homemade or commercially produced, should be placed between the skin surfaces. Proper evaporation and drying can be encouraged by loose clothing. Pledgets (e.g., cut-up dental rolls) between the toes and well-ventilated shoes are important when the feet are involved. Uplift bras are helpful for inframammary intertrigo.



The areas should be gently and thoroughly cleansed and dried several times daily. Simple dusting powders reduce friction and absorb moisture.

Lotions or creams containing corticosteroids are useful in the treatment of the more inflammatory intertrigos and of intertriginous psoriasis and seborrheic dermatitis. If monilia or bacteria infection is a prominent factor, iodochlorhydroxyquin, nystatin, or an antibiotic should be added. If *Trichophyton* is isolated from the lesion, Whitfield's ointment is usually effective, but occasionally oral griseofulvin is necessary.

Heat Rash, or "prickly heat," is more formally called miliaria rubra. The eruption consists of discrete or aggregated patches of red papules or papulovesicles on diffusely erythematous skin. There is usually considerable itching and discomfort.

The sweat pore becomes occluded because of faulty keratinization, usually as a result of excessive, prolonged maceration. Sweat is retained in the sweat duct behind the point of occlusion and, when the duct dilates and ruptures, the sweat escapes into the epidermis to produce the clinical picture described above.

Heat rash occurs anywhere except on the palms and soles. Usually, the face is spared. Sites of friction such as the belt line, the antecubital and popliteal fossae, and the upper trunk and abdomen are favored. The severity of the eruption and its symptoms are directly proportional to the stimulus placed on the damaged sweat apparatus by heat and exercise.

Heat rash is frequently accompanied or complicated by such pyodermas as folliculitis, impetigo, and furunculosis. Heat rash may be a complication of a pre-existing dermatitis such as atopic dermatitis, contact dermatitis, and seborrheic dermatitis.

The treatment of heat rash requires that the sweat apparatus be put at rest by minimizing the stimuli to sweating. In the absence of sweating, the lesions begin to resolve, the keratin plug is shed from the sweat pore and the normal relationship between the gland, the duct, and the skin surface is re-established.

Air conditioning is the most effective method for resolving heat rash and preventing its formation. Even if air conditioning is available for only a portion of each day, the incidence of heat rash will be greatly diminished. Fans or other means of increasing air flow and evaporation are helpful in the absence of air conditioning. Occlusive protective garments should not be worn continuously; rest periods should be used for their removal for a time sufficient for cooling and drying of the skin. Intrinsic heat production may be minimized by reducing the work load. Systemic corticosteroids may be used to relieve the uncomfortable symptoms of severe heat rash while restoration of sweat gland function is taking place.

Topical applications which unduly dry, macerate, or injure the skin (in such a way as to induce faulty keratinization) should be avoided. Most topical therapy accomplishes very little once the heat rash is present.

\* \* \* \* \*

Studies in Ecology of Coronary Heart Disease

Lawrence E. Hinkle Jr. MD, et. al., Archives of Environmental Health, 9(1): 14-20, July 1964.

Cardiologists have long known that physical activity, changes in position, and certain bodily functions such as digestion and sleep may be associated with changes in the electrocardiographic complex. It has been postulated that some of the changes that occur under such circumstances are indicative of cardiovascular disease, and that certain occupations or activities may accelerate or even cause coronary heart disease. Hence, it is important to have a more thorough understanding of the range of variation of the human electrocardiogram under a variety of ordinary conditions. The authors have taken advantage of recently developed methods for monitoring the electrocardiogram and are making a systematic effort to obtain a more exact picture of the nature, the degree, and the frequency of the changes that occur under the conditions of daily life.

Method. The phenomena that are here described have been observed during the study of some 300 ambulatory, ostensibly healthy men and women between the ages of 20 and 60, of whom 200 were members of a randomly designated group of actively employed men in their 50's. This study is still underway. Each subject is being observed throughout one day of carefully controlled and carefully timed activity in the author's laboratories. After a night's sleep in comfortable quarters provided by the writers, systematic recordings are being obtained under the following controlled conditions:

1. With the Subject rested, fasting, and supine
2. With the Subject in the left and right lateral decubitus, the knee-chest position, seated, and standing
3. During the Valsalva maneuver
4. During the Master's test
5. During the ingestion of 500 cc of ice water, followed by 500 cc of hot coffee
6. During three brief walks in the outside air of 175, 125, and 125 meters each (the ambient temperature has ranged from  $-4^{\circ}\text{C}$  ( $25^{\circ}\text{F}$ ) to  $24^{\circ}\text{C}$  ( $75^{\circ}\text{F}$ ), depending on the season, with extremes from  $12^{\circ}\text{C}$  ( $10^{\circ}\text{F}$ ) to  $32^{\circ}\text{C}$  ( $90^{\circ}\text{F}$ ))
7. During three hours of moderately challenging and anxiety-producing psychological tests and interviews
8. During the ingestion of a high caloric meal of large bulk, followed by 360 cc (12 oz) of a carbonated beverage
9. While walking up a flight of 13 stairs and over 125 meters of level ground immediately after this meal
10. During the afternoon, after a day of continued sedentary activity to the point of moderate fatigue.

Additional, but less systematic, recordings have been obtained under a variety of other conditions throughout the day and during and after a large meal



in the evening, as well as during sleep. Each step in the procedure is timed by stopwatch. A thorough medical history and cardiac diagnostic examination is carried out on each subject, as well as various laboratory investigations primarily concerned with fat transport.

The ECG is monitored by means of the miniaturized battery-powered tape recorder, developed by Holter et al. This apparatus will record one lead of the ECG over a ten-hour period. The electrodes are placed over the fifth rib in the nipple line bilaterally. The lead used is bipolar and has the general characteristics of lead I, although, because of the position of the electrodes, it has the appearance of V.

The data are analyzed by displaying the ECG complexes on an oscilloscope screen, superimposed on each other at 60 times "real-time." This produces a "moving picture" of the ECG, in which ten hours of data are displayed in ten minutes. Any desired segment of the complex may be photographed, diagrammed, or written out at real-time as a standard ECG. The cardiac rate and rhythm are analyzed by displaying the RR intervals as vertical bars on a calibrated oscilloscope screen.

Preliminary Findings. Although the majority of the young people thus far observed have relatively stable complexes, nearly all have displayed a loss of amplitude of the T-wave upon arising from a sitting position, or on the Valsalva maneuver. The ingestion of hot and cold fluids has had little effect upon this lead of the ECG. The Master's test shortens the QT time and usually causes the T-wave to lose amplitude as the heart rate increases. Walking 175 meters in the outdoor air has an effect as great as that of the Master's test. As a large meal is ingested, the T-wave loses amplitude and the rate increases. Walking up a flight of stairs after the meal accentuates this effect. Nearly all young people have shown a moderate phasic variation of heart rate with respiration. In the afternoon after a large meal, the heart rate is consistently 10 to 20 beats per minute greater than in the morning.

Approximately one third of the young men thus far observed have had more labile complexes. When they are in the standing position or performing the Valsalva maneuver, their T-waves may become notched or inverted. On the Master's test, the ST segments may become slightly depressed. Walking 175 meters in the outdoor air has a similar effect. While they are ingesting a large meal, their T-wave may become flattened, notched, or inverted. When they walk up a flight of stairs after the meal, their ST segments may become noticeably lower, and sometimes depressed, and this may persist for a short while. An equal or greater proportion of healthy young women appear to have unstable complexes. Their T-waves invert on standing or on the Valsalva maneuver. They show a sharp rise in heart rate and slight depression of the ST segment on the Master's test. Similar or even more marked changes occur when they ingest a large meal and then walk up a flight of stairs.

In some subjects, the electrocardiographic complex undergoes a regular evolution during the course of a day. In the morning, with the subject rested and moderately active, the complex has a "healthy," "normal" appearance. In



the afternoon, after a busy day, the T-wave is lower and tends to become notched or inverted. As the tired subject ingests a large dinner, the T-wave may invert entirely and the ST segment may become depressed. These changes persist during the evening. However, after 20 minutes of restful sleep, the T-wave is again upright, and after six hours of sleep, the complex has resumed its healthy, normal appearance.

In men in their 30's and 40's, electrocardiographic changes with position, diet, and activity have seemed to be more pronounced and persistent than they are in younger men. During a large meal, the T-wave may become quite flat and notched. A pronounced ST sag may develop after the meal and persist during the afternoon.

These effects seem to be even greater and more persistent among older men. For example, a man of 56, with a blood pressure of 160/90 and a history of some "atypical chest pain" in the past, had only slight changes in a standard exercise test. Walking 175 meters in the outdoor air produced an alarming sag in his ST segment, but no symptoms. After a large meal and climbing a flight of stairs, he exhibited a "distinctly pathological" ECG. This persisted all afternoon, but at no time did he have any symptoms or appear to be in any way distressed. Phenomena such as this have been observed repeatedly.

Atrial premature contractions have been noted at all ages, but they are less common than ventricular premature contractions. They seem to show a distinct association with pulmonary disease.

Ventricular premature contractions are very common. Most men in their 50's have been found to have from one to five ventricular premature contractions per hour, and some have as many as 400 per hour. They often increase with anxiety, and after a large meal, they may become very frequent and appear in pairs or bursts.

Not infrequently, the authors have noticed striking electrocardiographic changes in ostensibly healthy men in their 50's. Such a man may have no history of cardiovascular disease. His standard ECG is normal, and after a careful examination by a cardiologist, it has been decided that he has no clinical evidence of cardiac disease. Yet, a short walk in the outside air produces a noticeable ST segment depression. Psychological tests bring forth bursts of ventricular premature contractions, many of them followed by T-wave inversion. A large meal greatly accentuates these changes, which persist throughout the afternoon. Yet the subject remains asymptomatic throughout all of this.

Striking changes in intraventricular conduction have also been recorded with considerable frequency in asymptomatic middle-aged men. For example, an asymptomatic man, whose only known cardiovascular disorder was a modest grade of hypertension, displayed alternately right bundle branch block, left bundle branch block, and normal intraventricular conduction. The normal intraventricular conduction was usually associated with two to one atrioventricular block and a more rapid atrial rate. Throughout most of the day, this alternated with slower sinus rhythm accompanied by right bundle branch block and normal atrioventricular conduction.



A number of men who have developed anginal pain on the Master's test, on walking 175 meters outdoors, and after a large meal, have had electrocardiographic changes less pronounced than those of many men who remained asymptomatic throughout the day.

Some men, whose electrocardiograms show ST segment depressions and inverted T-waves in the morning, have developed upright T-waves, often without segment depression, after exercise or after a large meal.

During follow-up studies, some men who were observed to have abnormal ECG's have later developed myocardial infarction.

A significant proportion of men in this age group have had electrocardiographic complexes as stable as those of young men in their 20's. On the Master's test, on walking 175 meters in the open air, after a large meal, and with fatigue they have developed no significant change in the complex and no evidence of disturbed conduction or of arrhythmia. Yet, two of these men have died suddenly with the clinical syndrome of acute myocardial infarction within several months after the authors studied them.

Comment. The evidence to date indicates that changes in the ST segment and T-wave vectors occur so frequently in people of all ages and both sexes, in association with ordinary activities and common physiologic states, that the writers believe it is hazardous to assume that they necessarily indicate the presence of a pathological process.

There is a strong suggestion that some people with unreactive and quite stable electrocardiographic patterns may be at least as susceptible to acute myocardial infarction or to sudden death as those with more labile patterns. On the other hand, the finding that asymptomatic men in their 50's, most of whom presumably have extensive coronary atherosclerosis, may exhibit pronounced arrhythmias and changes in intraventricular conduction during periods of anxiety, while ingesting a meal, or while engaging in ordinary activity, suggests that rather trivial events might possibly initiate serious episodes of arrhythmia, or even ventricular fibrillation and death, in people with damaged or partly impaired hearts.

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#### Hazards May Lurk in Your Hobby

D. E. Bell MD, Occup Hlth Bulletin, Vol. 19, No. 4, 1964.

"Tis to create and in creating live." There in Lord Byron's words lies the reason, the purpose, even the need for a hobby. Whether it be the modeling of a spacecraft, or the building of a strong light boat, the hobbyist has a sense of accomplishment and fulfillment of his need for creative work.

Today, there is greater need than ever for creative expression, as computers and other mechanized giants usurp the work of brain and hand.

Because these same machines have freed men's hands and liberated their



minds, they now have more leisure time. Compare the hobbyist of grandfather's time with the hobbyist of today. Grandfather probably worked 60 hours or more a week, 52 weeks a year for an annual income of slightly more than \$1,000. His grandson works only 40 hours a week, has a two-weeks paid vacation and earns between \$3,000 and \$4,000 a year. He is therefore in a favored position to engage in a hobby. And he finds countless things to do and make; awaiting his ingenuity is an almost bewildering array of tools, chemicals, resins, waxes, glues and other substances to use as he chooses.

Free from the nagging care and hurly burly of the day's work, he may spend many happy hours absorbed in his chosen pursuit. Free from the watchful eye of the foreman and safety supervisor, the gleaming teeth of his circular electric saw may whirl through a 2" x 4" pine board and a finger carelessly left in the path of the saw's advance. Mist of a garden insecticide from his spray gun may fall alike on his apples and himself; glues, waxes and plastic paints, may coat part of his skin as well as his boat. Too late, he realizes from the stub of a finger, the irritating bright red rash on his arm or the nausea and dizziness experienced after spraying his apple trees that for him, the careless worker, some hobbies are not without their hidden hazards.

Sooner or later experience teaches the heedless hobbyist or the careless Mr. Fix-it that some spare-time jobs are like uncharted seas where lurk many a reef: unfamiliarity with tools and materials, lack of knowledge of their use and properties, lack of adequate precautions, absence of supervision.

The unwary hobbyist may run afoul of these hidden reefs because he tends to choose a pastime unrelated to his paid employment. The operator of a lathe may be quite unfamiliar with the potential hazards of certain pesticides, or the dangers inherent in commonly-used substances like benzene and carbon tetrachloride. Likewise, a chemist may be unprepared for the speed and power of his electrically-driven drill-press.

Tools. Power tools need no "hidden persuaders" to sell them. Already the would-be purchaser covets them because of the amazing variety and diversity in their use. If he uses them carefully, he is likely to keep all ten fingers intact. But concerned with getting on with the job, the handyman may feel pressed for time and may not pause to read warning labels or directions for use. Crushed and amputated finger ends attest to his all too common heedlessness.

Potentially Dangerous Substances. Just as a knowledge of his tools is important to the safety of the hobbyist, so, too, is a knowledge of the chemicals, glues, waxes, resins and other materials he uses.

Epoxy Resins. Unfamiliar though epoxy resins are to a do-it-yourselfer, he may try them on the boat he is building. Although useful, these "wonder glues" require careful handling because of their potentially toxic properties. Their bonding properties make them desirable if not indispensable for certain applications. Unfortunately, they possess toxic properties which, at present, seem to be inseparable from their desirable ones. In fact, the very characteristics that make them potentially hazardous—the high degree of chemical reactivity of the basic ingredients—are largely responsible for their great strength as bonding agents.

Dermatitis is the most common effect experienced from exposure to epoxy resins, though ill effects from inhalation of fumes of plastic can also occur. Skin contact should therefore be avoided with the resins and hardeners and they should be applied only in very well-ventilated rooms.

Pesticides. Like the untrained user of epoxy resins, the backyard gardener is less likely to know the potential hazards of certain compounds than the farmer or orchardist. Not only may he have no hesitation in using pesticides on his flower garden or apple trees, but he may do so without reading the label. "Unintentionally he does more harm to himself and his neighbor than the farmer who is aware of the hazards", said Dr. Henry Hurtig of the Department of Agriculture, Ottawa.

"And no farmer would likely use four pounds of a pesticide when directions call for half a pound—it costs too much, and he knows his crops might have a residue exceeding legal limits", said Dr. Robert White-Stevens of the American Cyanamid Company of Princeton, N. J.

But it is not only back-yard gardeners whose health may be jeopardized by the misuse of pesticides. A threat to health exists within the home through their careless or excessive use. A pathologist's report lists the death of a ten-year old girl as "aplastic anemia probably due to DDT". According to the report the girl's mother had used DDT around the house as an insecticide "liberally and repeatedly." The insecticide's solvent may have been a contributing cause of death, but specific information on the nature of the solvent in the DDT used was not available.

Carbon Tetrachloride. Unlike certain pesticides which are of comparatively low toxicity, carbon tetrachloride is highly toxic—ten times more poisonous than carbon monoxide. Unfortunately, because of its excellent solvent properties and non-flammability, carbon tetrachloride is commonly used in the home as a stain remover and as a cleaner for rugs, upholstery and tools. Never, under any circumstance, should this extremely dangerous compound be used in the home workshop or for domestic purposes. Carbon tetrachloride's lethal power is increased if the person using it has recently had a drink containing alcohol or drinks an alcoholic beverage while using this solvent in a poorly-ventilated place. A man is known to have died from carbon tetrachloride poisoning while drinking a quart of beer as he cleaned his rug.

What to Do. What safeguards are there for those who want to find self-expression in creative work outside their employment? Briefly they are: know the potential for harm of the material or equipment you are using. Read and apply to your work the directions for use on the label. And remember the labels mean exactly what they say. If, for instance, the label states, "Use only in a well-ventilated area"; do not use in a room where there is little or no ventilation. Disregard of the warning label can lead to illness or death; as cases in scientific and medical literature silently testify.

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**RESERVE****SECTION**Farewell Remarks by RADM F. J. Becton, USN \*

ROA IS DESERVING OF YOUR SUPPORT.....In outlining the objectives of the Naval Reserve for Fiscal Year 1965, I stated that the current Selected Reserve manpower ceiling of 126,000 in drill pay status presented us with a challenge in our efforts to provide our country with a Naval Reserve of the highest quality. We tried unsuccessfully to have this ceiling raised, for we have maintained that a maximum drill pay strength of 126,000 is not realistic. For this reason, I was delighted to see that the House of Representatives has included in the appropriations bill for Fiscal Year 1965, an increase to 132,000 in the personnel ceiling of our drill pay Reserve including provisions for obtaining the necessary funds to support this increase. Largely responsible for this legislation in our behalf has been the Reserve Officers' Association. This Association is chartered by the Congress with a mission to maintain a strong national defense posture. In view of its Congressional charter, the National Staff of the Association appears before the Congressional committees on matters of National Defense. They are highly respected by the Congress, alert to our needs, and have a splendid record of more than forty years of accomplishments in behalf of our nation's Armed Forces, both Regular and Reserve.

In nearly three years association with the Naval Reserve, I have had the opportunity of meeting hundreds of fine Reserve officers, many of whom realize the benefits to be derived through active membership in ROA. Through membership in ROA, one has a voice in making possible much of today's legislation in support of military policies for the United States that provide adequate national security. ROA's national leaders spend long hours at work in our Nation's capitol where ROA-sponsored proposals have successfully passed the legislative maze of subcommittees, committees, House and Senate.

The fact that ROA represents and looks after the interests of all branches of the Armed Forces adds to the weight of this organization's testimony to the Congress and in so doing, increases ROA's effectiveness in support of the Navy. At the recent ROA convention in Portland, Oregon, I was impressed with the relatively high percentage of Coast Guard Reserve officers who actively participate in ROA affairs. Membership in ROA can be equally beneficial to all Naval Reserve officers.

For the past 34 months it has been my privilege to serve as Commander Naval Reserve Training Command a most interesting and challenging assignment which has reaffirmed my convictions as to the wisdom of maintaining a strong and well trained Naval Reserve. Too often, our Naval Reserve is regarded as a Force which, in time of war or national crisis, will voluntarily spring from the rank and file of the communities throughout this great nation. This was the case in World War II when from only 285,000 officers and men just prior to the



war, our Navy expanded to almost three-and-one-half million men and women on VJ-Day in 1945. Eighty-seven per cent of these were Reserves. The interest I developed in the Naval Reserve during the war has remained with me ever since.

As I leave this Command to take over my new assignment as Naval Inspector General, I do so with the utmost pride and sincere appreciation. I am profoundly proud that our fine Selected Reserve is today much stronger and in a higher state of readiness than in recent years. The preceding Fiscal Year marked the first time in recent Naval Reserve history that the Selected Reserve has attained the enlisted pay strength authorized by the Department of Defense.

Upon reporting to Omaha as Commander Naval Reserve Training Command in October 1961, the Reserve crews of our forty Naval Reserve destroyers and destroyer escorts of our Anti-Submarine Warfare program had been recalled to active duty incident to the tensions which had arisen in Berlin and Southeast Asia. Although the officers and men of these ships performed superbly during the call-up, when they returned in August 1962, many did not remain with the Reserve crews. Today, I am proud to report that these ASW ships are now more fully manned and in a better material condition than they were in 1961. The Reserve crews of these ships have grown from a low of 16 per cent nation-wide average personnel allowance immediately following their release from active duty to over 93 per cent at present.

The past year has been marked by improved quality and increased readiness within all of our Selected Reserve programs. We are providing our country with a well trained and responsive Naval Reserve. Had it not been for cooperation and dedicated effort on the part of officers and enlisted personnel at all levels of command, these accomplishments would not have been possible. To each and all of you, I offer my sincere thanks and a hearty "Well Done." It has been a pleasure serving as your Commander.

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\*Rendered on the occasion of Admiral Becton's detachment as Commander, Naval Reserve Training Command, Omaha, Nebraska.

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